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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.		
10/566,339	09/25/2007	Mukerrem Cakmak	089498.0454.US	1027		
39905	7590	02/16/2011	EXAMINER			
Daniel J. Schlué Roetzel & Andress 222 S. Main St. Akron, OH 44308				VIJAYAKUMAR, KALLAMBELLA M		
ART UNIT		PAPER NUMBER				
1736						
MAIL DATE		DELIVERY MODE				
02/16/2011		PAPER				

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/566,339	CAKMAK ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	KALLAMBELLA VIJAYAKUMAR	1736

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 26 November 2010.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-12 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-12 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>11/26/2010</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application
	6) <input type="checkbox"/> Other: _____ .

## DETAILED ACTION

- Applicant's amendment filed 11/26/2010 with the arguments has been entered. Claims 1, 4-7 and 10-12 were amended. Claims 1-12 as amended are currently pending with the application.
- The amendment and arguments overcome the rejection of claims over Kwata (US 5,512,399) and Creehan (US 5,445,327).
- The examiner has considered the IDS filed 11/26/2010.

### Claim Rejections - 35 USC § 102

#### Claim Rejections - 35 USC § 103

- The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 1-11 are rejected under 35 U.S.C. 102(a/e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Chacko (US 2003/0100653).
  - In the absence of the definition of nanoparticles by the applicants, the examiner construes the nano-size particle to encompass a range of 1 nm-1.0  $\mu\text{m}$  for the purposes of the examination. Chacko teaches a polymeric thick film exhibiting homogeneous surface electrical characteristics comprising a dispersion of conductive carbon black/carbon nanotubes/VGCF and nanoclay in a polymer matrix such as polyamide imide, polyimide, phenoxy and epoxy [Abstract; 0004, 0010, 0012-13, 0021-23; 0025-26; 0028-31; 0035-37, 0039-0067 and Examples particularly 6, 10, 12, 13 and 15]. The resistive polymeric thick film was made by milling the components in a high shearing mill forming a dispersion and coating the dispersion over a substrate [0035-37]. The uniform dispersion of the fillers throughout the matrix of the thick film is anticipated over the high shear milling of the multi-component mixture to desired particle size, and a uniform homogeneous thick film formed by screen-printing of the dispersion. The nanoclay particles are layered silicates with a layer thickness of about 1 nm and the lateral (planar)

dimension of the layers that vary from 0.3 nm to several microns that meets the limitation of platelet shaped nano sized particles in the claims [0026]. Ref claims 6 and 9-11, Chacko teaches polymeric thick film with uniform surface conductivity and enhanced mechanical and thermal properties that contain nanoclays and minimum amount of conductive fibers/conductive particles <see examples> i.e. improved conductivity <percolation>, wherein the prior art components and composition are either same or substantially same as that claimed by the applicants and Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. See <MPEP 2112.01[R3]-I>. All the limitations of the instant claims are met.

In the alternative that the disclosure by Chacko be insufficient to anticipate the instant claims, it would have been obvious to a person of ordinary skilled in the art to make minor modifications including varying platy/scaly nanoclays and their ratios in the composition and process of Chacko to attain desired conductivity over the prior art disclosure because the reference teaches each of the claimed ingredients within the composition, varying their ratios and a method of making it. The burden is upon the applicant to prove otherwise. *In re Fitzgerald*, 619 F.2d 67, 205 USPQ594 (CCPA 1980) [MPEP 2112 [R-3-V].

**2. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chacko (US 2003/0100653).**

The disclosure on the composite composition by Chacko as set forth in Rejection-1 is herein incorporated.

Chacko fails to teach the specific steps per the claim.

Ref method claim-12, Chacko teaches making a resistive element by milling the components, coating the surface and curing the film. Chacko further teaches polymeric thick film with uniform surface conductivity and enhanced mechanical and thermal properties obtained by varying the component ratios that includes nanoclays resulting in minimum use of conductive fibers/fillers i.e. improved conductivity

<percolation>, and the identification/target of the conductivity/ resistivity in a resistive element and adding effective nanoclay/dispersion control agent would be obvious.

**3. Claims 1-12 are rejected under 35 U.S.C. 103(a) as obvious over Yui et al (US 4,552,689).**

Yui et al teach a conductive polymer composition comprising a crystalline propylene copolymer of propylene and one or more  $\alpha$ -olefin <thermoplastic>, a synthetic rubber <thermoset> and inorganic filler [Title, Abstract; Cl-2, Ln 49-67]. The inorganic fillers comprise mica with a particle size of 0.1-100 micron [Cl-4, Ln 1-5, 22-29]. The conductive fillers comprise conductive carbon blacks [Cl-5, Ln 15-29]. The components were mixed together in a blender and shaped into desired shape with good dimensional stability [Cl-5, Ln 29-56].

The prior art is silent about the shape of mica particles in the composition.

It would have been obvious to a person of ordinary skilled in the art to make the compositions of Yui with mica plates as inorganic filler with the expectation of obtaining same results and reasonable expectation of success because the prior art discloses the preferred use of plate shaped mica to attain dimensional stability of polypropylene compositions [Cl-1, Ln 27-42] and Yui desires improved dimensional characteristics in the composition [Cl-1, Ln 60-65].

Ref characteristics in claims 1, 6 and 8-12, the percolation of conductive fillers with uniform dispersion in the prior art composition attaining specific electrically conductivity would be obvious because it is formed by blending the components and shaping the article, wherein the components present in the composition and the composition are either same or substantially same as that claimed by the applicants, and Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. See <MPEP 2112.01[R3-I]>. The particle size of 0.1-200 micron for the inorganic fillers overlaps with the sub-micron to nano-sized particles and

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prima facie obvious. The method in claim-12 including the identification/target of the conductivity/resistivity in the conductive moldings would be obvious in the prior art over the applications of compositions to electronic applications [Cl-5, Ln 40-56].

Ref claims 2 and 4, the prior art teaches block polymers of propylene and  $\alpha$ -olefins.

Ref Claim-3, the prior art teaches elastomers and rubbers.

Ref Claims 5 and 7, the prior art teaches conductive carbon blacks.

### **Response to Arguments**

Applicant's arguments filed 11/26/2010 have been fully considered and they overcome the prior art by Kwata (US 5512399) and Creehan (US 5445327), but they are not persuasive to overcome the prior art by Chacko (US 2003/0100653). In response to the argument that Chacko does not teach the platelet shaped dispersion control agent/non-conducting particles, the prior art clearly teaches that [0026]

**ball milling. The nanoclay particles are layered silicates, wherein the layer thickness is around 1 nanometer and the lateral dimension of the layers vary from 0.3 nanometers to several microns. Molecular silica is derived from a class of**

And the nanoclay particles with a thickness of 1-nm and lateral/planar dimension clearly meet the limitation of platelet-shaped particles in the claims.

For the reasons set forth above applicants fail to patentably distinguish their composition and method over the prior art.

### Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KALLAMBELLA VIJAYAKUMAR whose telephone number is (571)272-1324. The examiner can normally be reached on M-F 07-3.30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 5712721358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KMV/  
Feb 12, 2011.

/Stanley Silverman/  
Supervisory Patent Examiner, Art Unit 1736